Mem. Qd Mus. **20**(1): 89–93, pl. 1 [1980]

A REVIEW OF THE DE VIS FOSSIL PIGEONS OF AUSTRALIA

G.F. VAN TETS
Division of Wildlife Research, CSIRO
and
P.V. RICH
Earth Sciences Department, Monash University, and National Museum of Victoria

ABSTRACT

A review of Australian avian fossils *Nyroca effodiata* De Vis, *Leucosarcia proevisa* De Vis and *Lithophaps ulnaris* De Vis has shown that they cannot be distinguished from living species of pigeons, *Phaps histrionica* and *P. chalcoptera*. The type specimens of *N. effodiate* and *L. proevisa* are shown to be two parts of a single humerus.

From a large collection of fossil birds in the Queensland Museum, Charles W. De Vis described only three as extinct new species of pigeons: *Progura gallinacea* (1888); *Lithophaps ulnaris* (1891); and *Leucosarcia proevisa* (1905). *Progura gallinacea* was shown to be a megapode by van Tets (1974). While checking the De Vis material we found that the type of *Nyroca effodiata* (1905), described and named as a duck by De Vis is the distal part of the same humerus designated as the type of the pigeon *Leucosarcia proevisa* (Rich 1976, p. 59, fig. 4). We agree that this material is columbid but is not separable from modern species.

We have compared the type material of *Lithophaps ulnaris, Leucosarcia proevisa,* and *Nyroca effodiata* with every genus and almost all species of living Australian pigeons in the collections of the National Museum of Victoria (NMV), Melbourne; the Australian National Wildlife Collections, Division of Wildlife Research, CSIRO (ANWC), Canberra; and the Queensland Museum (QM). We have used the classification of Condon (1975) with amendments (*Emu* **76:** 216–7; **78:** 80–7).

SYSTEMATICS

'Leucosarcia proevisa' De Vis, 1905 and **'Nyroca effodiata'** De Vis, 1905

TYPE SPECIMENS: *Leucosarcia proevisa,* QM F5511, proximal right humerus; *Nyroca effodiata,* QM F5544, distal right humerus; these two fragments fit together to form one nearly complete element lacking only part of the midshaft on the internal side (Plate 1). The combined specimen is now registered as QM F5511.

TYPE LOCALITY AND AGE: Wurdulumankula, eastern Lake Eyre Basin, South Australia, Quaternary (Fig. 1).

DIAGNOSIS

Differs from all other Australian pigeons except those in the genus *Phaps* by combining the following character states: head is highly domed, not flattened proximally as in *Petrophassa;* distinct ridge runs from external end of head across anconal surface of shaft diagonally to capital groove, which is absent in several pigeons including *Macropygia* and absent or only slightly indicated in *Ptilinopus;* long axis of ligamental furrow forms small acute angle with long axis of shaft, not large one as in *Ptilinopus, Petrophassa, Macropygia, Ducula, Leucosarcia, Geopelia, Chalcophaps* and *Ocyphaps;* proximal projection of long axis of shaft passes through external segment of head instead of lateral to it as it does in *Petrophassa;* internal surface of shaft just distal to pneumatic fossa deep, markedly planar, and delimited anconally by a sharp ridge that continues distally on the shaft crossing onto the anconal surface (extremely reminiscent of *Phaps histronica)* differing from most other Australian pigeons (including some *Phaps)* in which this area is more curved; internal margin of shaft not highly curved unlike that of *Petrophassa;* tubercle along

external border of shaft elevated further proximally from distal end (25% of total shaft length) than in other pigeon genera except *Phaps, Geopelia,* and *Columba;* distal end does not flare broadly unlike that in *Leucosarcia, Petrophassa, Columba* and *Ocyphaps;* ectepicondylar prominence is subdued, not protruding far laterally, unlike in *Petrophassa;* external condyle is deep relative to width i.e. distal end is not markedly palmoanconally compressed unlike in *Petrophassa,* some *Phaps* (not *P. histrionica), Ptilinopus, Ducula,* and *Geopelia;* overall proportions of moderate length and indicate a gracile bird, not robust as in *Leucosarcia* or most *Columba,* and not as elongate as in *Ducula;* about the same size as some *Phaps, Columba,* and *Leucosarcia* (see Table 1), but smaller than *Lopholaimus.* Only the distal end of the humerous of *Lopholaimus* was available. It demonstrated no diagnostic qualitative differences, only differences in size.

COMMENT

When compared to every genus and most species of Australian pigeons, *'Leucosarcia proevisa'* clearly shares the greatest similarity with *Phaps,* the Bronzewings, and in fact should be included in that genus. The fossil exhibits no qualitative differences from any of the species of *Phaps. P. elegans* is distinctly smaller than the fossil, however. Both *P. histrionca* and *P. chalcoptera* are so similar in size and proportions to the fossil that precise assignment to either of these species seems impractical (see Table 1 and Fig. 2). Thus, *'Leucosarcia proevisa'* should be re-assigned to *Phaps* within the *P. histrionica/ chalcoptera* assemblage.

'Lithophaps ulnaris' De Vis, 1891

TYPE SPECIMEN: Complete right ulna, QM F1119 (Plate 1).

TYPE LOCALITY AND AGE: Darling Downs, South-eastern Queensland; Quaternary (Fig. 1).

FIG. 1: Localities of fossil pigeons in Australia and ranges of *Phaps chalcoptera* and *P. histrionica.*

TABLE 1: MEASUREMENTS (IN MM) OF HUMERI OF RECENT AND FOSSIL PIGEONS OF AUSTRALIA

Taxa	Total length of bird	Museum numbers, where applicable	N	Measurements A Total length	B Maximum Width proximal end	C Width of distal end	D Depth of external condyle
Ptilinopus cinctus	330	ANWC BS233	1	41·0	12·5	8·9	5·5
Ptilinopus superbus	230	ANWC BS244	1	30·8	11·1	7·7	4·6
Ptilinopus magnificus	430–560	ANWC BS255	1	46·0	15·9	11·5	6·7
Lopholaimus antarcticus	430	NMV B9229	1	—	—	13·6	8·4
Columba livia	330	NMV —	1	41·8	17·3	10·3	*c.*6·9
Streptopelia chinensis	280	NMV W6447	1	34·8	11·6	8·1	5·0
Macropygia amboinensis	400	NMV R6470	1	39·5	13·0	9·2	5·6
Geopelia cuneata	200	NMV W6185	1	19·4	6·8	4·9	2·8
Geopelia humeralis	290	NMV W4834	1	31·6	11·7	7·9	4·8
Chalcophaps indica	240	NMV W5915	1	32·3	11·1	8·8	4·8
Phaps chalcoptera	305	—	21	42·2–47·6	14·7–16·8	10·6–11·9	5·8–7·5
Phaps elegans	280	—	9	38·6–41·1	12·3–13·7	9·5–10·4	5·8–6·3
Phaps histrionica	280	—	4	44·2–45·3	14·9–16·8	9·9–10·7	6·7–7·3
Ocyphaps lophotes	320	NMV B8873	1	38·8	14·4	9·5	5·7
Petrophassa smithii	250	ANWC BS234	2	31·6–34·1	12·3	8·4– 8·9	5·1–5·6
Petrophassa albipennis	280	ANWC BS226	1	32·4	11·2	8·5	4·9
Petrophassa plumifera	200–230	NMV B8536	1	27·0	9·3	6·9	4·3
Leucosarcia melanoleuca	430	ANWC BS232	1	47·7	17·7	12·5	8·1
'Leucosarcia proevisa and *Nyroca effodiata'*	—	QM F5511/ F5544	1	45·5	>16·0	10·5	6·6

DIAGNOSIS

Tubercles on convex rear edge of fossil are of similar size and evenly spaced as in *Geopelia, Phaps, Petrophassa, Ocyphaps* and *Leucosarcia* and not with fourth turbercle from distal end being smaller than three more distal tubercles as in *Ptilinopus, Ducula, Lopholaimus, Chalcophaps, Columba* and *Streptopelia;* or with several median tubercles smaller than proximal and distal ones as in *Macropygia;* ulnae of *Geopelia* and *Petrophassa* are much smaller (see Table 2) and of *Leucosarcia* much larger and stouter; compared with species of *Phaps,* fossil decidedly longer than *P. elegans,* but comparable in size to *P. chalcoptera* and *P. histrionica,* neither of which exhibit significant differences in size and shape.

COMMENT

In overall morphology we can find no differences between *'Lithophaps'* and *Phaps. 'Lithophaps ulnaris'* falls within the size range of both *Phaps chalcoptera* and *P. histrionica* (see Table 2 and Fig. 3), and we cannot distinguish between these two species. Thus, *'Lithophaps'* should be included within *Phaps* and *'L. ulnaris'* referred to the *P. chalcoptera/histrionica* assemblage.

TABLE 2: MEASUREMENTS (IN MM) OF ULNAE OF LIVING AND FOSSIL *PHAPS* PIGEONS IN AUSTRALIA

Taxa	n	Total length	Proximal width	Minimum shaft width	Distal width
Phaps chalcoptera	19	46·7 – 52·7	6·7 – 8·3	2·9 – 3·6	6·1 – 6·8
Phaps elegans	16	41·3 – 44·3	5·9 – 6·9	2·6 – 3·0	5·2 – 5·6
Phaps histrionica	3	50·4 – 52·5	5·8 – 8·0	3·0 – 3·2	6·1 – 6·5
'Lithophaps ulnaris'	1	>47·3	6·7	2·9	5·1

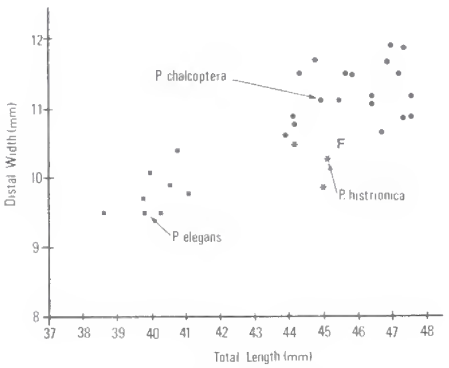


FIG. 2: Plot of humeral measurements of extant species of Australian *Phaps* and F, the fossil *'Leucosarcia proevisa* and *Nyroca effodiata'*, QM F5511/F5544.

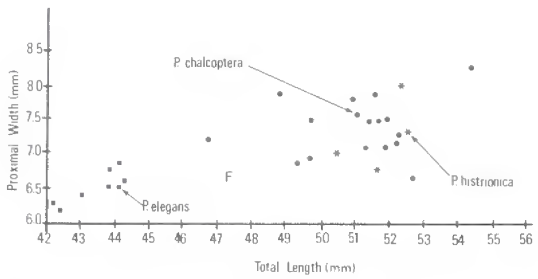


FIG. 3: Plot of ulnar measurements of extant species of Australian *Phaps* and F, the fossil *'Lithophaps ulnaris'*, QM F1119.

CONCLUSIONS

A review of the fossil pigeon material described by C.W. De Vis has demonstrated that *'Leucosarcia proevisa'*, *'Nyroca effodiata'* and *'Lithophaps unlnaris'* should be included within the living genus *Phaps*, the Bronzewings. Although the fossils represent birds distinctly larger than the Brush Bronzewing *(P. elegans)*, they fall within the range of variability exhibited by both the common Bronzewing (*P. chalcoptera*) and the Flock Pigeon (*P. histrionica*), and we can see no decisive method for distinguishing these species on the basis of the humerus or the ulna. We can thus assign the fossils only to the *chalcoptera/histrionica* assemblage. Although somewhat south or southeast of the modern geographic range of *P. histrionica*, the fossil occurrences in northern South Australia and southeastern Queensland are within the range of the currently widespread *P. chalcoptera*.

ACKNOWLEDGMENTS

Sincere thanks are due to A. McEvey (National Museum of Victoria, Melbourne) and W. Bock and W. Lanyon (American Museum of Natural History, New York), for providing comparative material; and to A. Bartholomai and M. Wade (Queensland Museum, Brisbane) for kindly allowing us to review the De Vis material. Coral Armstrong and Wendy Guy typed drafts of the manuscript, Frank Coffa photographed the fossil and recent material, and Frank Knight drew the map.

LITERATURE CITED

CONDON, H.T., 1975. Checklist of the birds of Australia, Pt. 1. Non-passerines. (RAOU: Melbourne).

DE VIS, C.W., 1888. A glimpse of the post-Tertiary avifauna of Queensland. *Proc. Linn. Soc. N.S.W.* (2)**3**(3–4): 1277–92.

1891. On the trail of an extinct bird. *Proc. Linn. Soc. N.S.W.* **2**(4): 117–22.

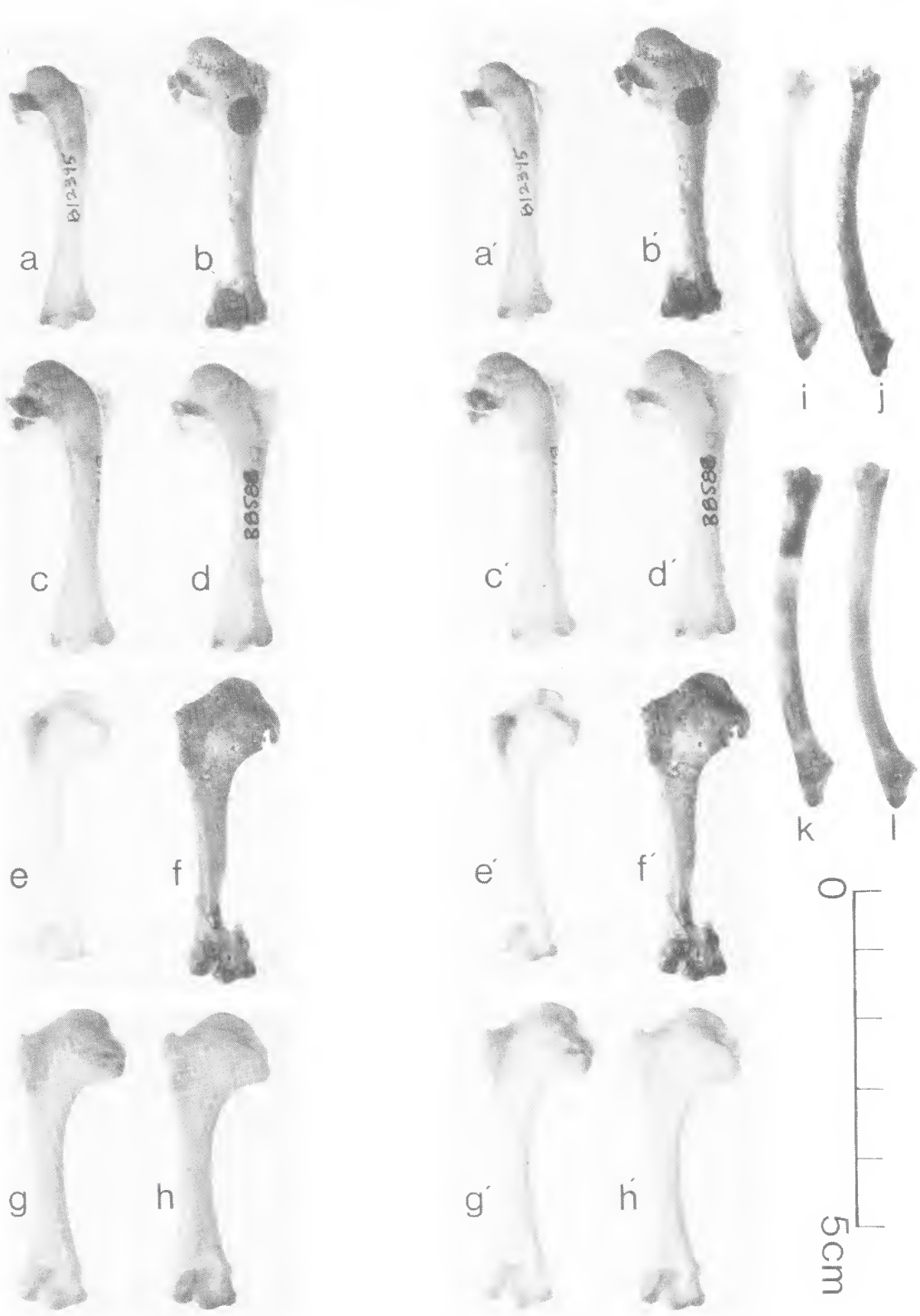
1905. A contribution to the knowledge of the extinct avifauna of Australia. *Ann. QdMus.* **6**: 1–25.

RICH, P.V., 1976. The history of birds on the island continent Australia. Proc. 16th Int. Ornith. Cong., Canberra. *Aust. Acad. Sci.*: 53–65.

VAN TETS, G.F., 1974. A revision of the fossil Megapodidae, including a description of a new species of *Progura* De Vis. *Trans. Roy. Soc. S. Aust.* **98**(4): 213–24.

PLATE 1

Humeri and ulnae of fossil and recent pigeons. Right humeri, anconal views, stereo pairs: a, a' *Phaps elegans* (NMV B12395); b, b' *'Leucosarcia proevisa* and *Nyroca effodiata'*, QM F5511/F5544); c, c' *Phaps chalcoptera* (NMV B12400); d, d' *Phaps histrionica* (NMV B8588). Right humeri, palmar views, stereo pairs: e, e' see a; f, f' *Lithophaps Ulnaris, Ulnaris QM–1119* g, g' see c; h, h' see d. Right ulnae lateral views: i, see a; j, see b; k, see c; and l see d.


a
b
c
d
e
f
g
h
a′
b′
c′
d′
e′
f′
g′
h′
i
j
k
l
0
5cm